



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/584,903	05/03/2007	Eva Witt	47113-5090	5061
55694 7590 08/25/2010 DRINKER BIDDLE & REATH (DC) 1500 K STREET, N.W. SUITE 1100 WASHINGTON, DC 20005-1209				
EXAMINER				
YEE, DEBORAH				
ART UNIT		PAPER NUMBER		
1793				
NOTIFICATION DATE		DELIVERY MODE		
08/25/2010		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DBRIPDocket@dbi.com

penelope.mongelluzzo@dbi.com

Office Action Summary

Application No.

10/584,903

Applicant(s)

WITT ET AL.

Examiner

Deborah Yee

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/28/06; 12/1/09 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/GS/8)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 23, 2010 has been entered.

Response to Arguments

2. Applicant's arguments and amendment filed June 23, 2010, with respect to 35U.S.C 103 rejection to US Patent 6,585,864 6 to Fisher et al. ("Fisher") or U.S. Patent 5,693,368 to Ackerman et al. ("Ackerman") in view of secondary teaching have been fully considered and are persuasive. Fisher teaches a method of coating a metal substrate directly with an overlay coating containing 8 to 13%Al or diffusion coating containing 35-45%Al whereas Applicant's claims recite direct contact composition layer containing an Al content of at least 75%. Ackerman teaches a method of coating a metal substrate with Al by CVD but metal substrate does not teach composition set forth in Applicant's claims. The rejection has been withdrawn.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 2 to 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,963,440 to Shimogori et al. ("Shimogori") in view of U.S. Patent 4,829,655 to Cornelison et al. ("Cornelison"), U.S. Patent 4,535,034 to Zaizen et al. ("Zaizen") or U.S. Patent 5,534,476 to Luoma et al. ("Luoma").
5. Similar to present invention, Shimogori in claim 1 teaches a process of making a coated metal product for high temperature application by coating an Al-Cr alloy on metal substrate by physical vapour deposition ("PVD") at a temperature between 100°C and 450°C within the claimed temperature of 100°C to 600°C in claim 2 and 150°C to 450°C in claim 11. The prior art coating alloy contains 1 to 50% Cr such that the maximum Al content can be 99% and would be within the claimed coating containing at least 75%Al.
6. Shimogori on lines 19 to 26 in column 1 teaches using a metal substrate that can be a Fe alloy or steel alloy in general but does not specifically recite the Ni-Cr iron alloy recited in claim 2 of the present application. Nonetheless, Shimogori on lines 5 to 18 of column 1 teach producing a coating product for high temperature application such as automotive exhaust mufflers that obviously include a catalytic converter which is the same utility as present invention. According to Cornelison on lines 42 to 45 of column 2, austenitic stainless alloys or super alloys are commonly used as a high temperature substrate metal and in table on lines 1 to 6 of column 7 teach a catalytic substrate made from AISI No. 314 containing 23-26% Cr and 19-22% Ni with iron balance that overlap and suggest Applicant's claimed composition. Since Applicant's claimed austenitic Fe-Ni-Cr alloy composition is known in the art and commonly used as a substrate for

catalytic converters then it would be obvious for one skilled in the art to use the Fe-Ni-Cr alloy taught by Cornelison as a substrate for the method of Shimogori.

7. Shimogori in table 13 of column 26 discloses example 1 wherein inner layer contains 10% Si and 90% Al which meets recited layered compositional limitation of having an Al content of at least 75% and 0.5 to 25% Si in claim 5. Also example 1 has an upper layer of pure Al which meets the recited limitation wherein at least one layer is Al in claim 3.

8. Shimogori does not teach the resultant alloy containing 4.5 to 12% Al and preferably 5.5 to 12% Al as recited in one or more of the instant claims but such limitation would be obvious to expect since composition and process of making are closely met and in absence of evidence to the contrary. In addition, it would be obvious for one skilled in the art to adjust Al content between 4.5 to 12% Al since it is conventional practice to produce a catalytic substrate with at least 4% Al to achieve the required high temperature strength and corrosion resistance for such application as evident by claim 1 of Luoma.

9. Shimogori on lines 5 to 18 of column 1 teach producing a coating product for high temperature application such as automotive exhaust mufflers that obviously include a catalytic converter and therefore satisfy claims 8 to 10.

10. Shimogori does not teach austenitic alloy containing REM as recited in claim 14. Nonetheless it is common practice to add REM such as 0.05% Ce and 0.01%La in analogous high -Al heat resistant coated steel to increase oxidation, temperature strength and hot workability as evident by Zaizen on lines 14 to 31 of column 4 and

claim 12 in column 8; and hence would be a matter of choice well within the skill of the artisan to incorporate.

11. Claims 2 to 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 4,829,655 to Cornelison et al. ("Cornelison") in view of U.S. Patent 4,963,440 to Shimogori et al. ("Shimogori") or U.S. Patent 5,534,476 to Luoma et al. ("Luoma").

12. Similar to present invention, Cornelison in claim 5 teaches a process of making an Al-coated metal catalyst support by coating Al onto a metal substrate by physical vapour deposition ("PVD"). Prior art Al coating is 100% Al and therefore meets Applicant's claimed coating limit of at least 75% Al. Also prior art metal substrate on lines 1 to 6 of column 7, AISI No. 314 comprises 23-26% Cr – 19-22% Ni – Fe balance which overlaps and suggest Applicant's claimed substrate of 15-27%Cr – 20-70% Ni – Fe balance.

13. Cornelison on lines 13 to 34 of column 7 discloses coating by physical vapour deposition wherein the Al is electrically-heated and vaporized continuously under high vacuum. Although Cornelison does not teach heating substrate at a temperature between 100°C and 600°C and preferably between 150°C and 450°C during coating as recited by instant claims, such would be obvious or expected since the temperature when coating Al on to metal substrate by PVD is commonly practiced between 100°C and 450°C, as evident by Shimogori in claim 1.

14. Cornelison in claims 5 and 6 teaches a layered austenitic alloy wherein at least one layer is Al or Al-based alloy and therefore meets instant claims 3 and 4.

15. Cornelison does not teach a layered austenitic alloy wherein at least one layer is an Al-base alloy containing 0.5 to 25%Si as set forth in instant claim 5. Nonetheless, Shimogori on lines 24 to 40 teach a high-Al layered substrate wherein 1 to 20% Si is added to Al layer to improve heat resistance. Since heat resistance is a property desired and sought by Cornelison then it would be an obvious modification well within the skill of the artisan to add 1 to 20% Si in view of Shimogori.

16. Cornelison does not teach the resultant alloy containing 4.5 to 12% Al and preferably 5.5 to 12% Al as set forth in one or more of the instant claims but such amount would be expected since composition and process of making are closely met and in absence of evidence to the contrary. In addition, it would be obvious for one skilled in the art to adjust Al content between 4.5 to 12% Al since it is conventional practice to produce a catalytic substrate with at least 4% Al to achieve the required high temperature strength and corrosion resistance for such application as evident by claim 1 of Luoma.

17. Cornelison on lines 1 to 12 of column 4 teaches producing a high-Al coating metal substrate for high temperature application that would include a catalytic converter or resistive heater as recited by instant claims 7 to 10.

18. Cornelison in claim 6 teaches coating composition containing less than 1.0% REM and therefore meets instant claim 14.

19. For the foregoing reasons, claims would not patentably distinguish over prior art.

20. The unapplied Japanese patent 363232850 to Atsushi Ando et al. has been cited to further depict the state of the art in coated substrate for catalytic converters.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Deborah Yee whose telephone number is 571-272-1253. The examiner can normally be reached on monday-friday 6:00 am-2:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Deborah Yee/
Primary Examiner
Art Unit 1793

/DY/